

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : TOPRE CORP

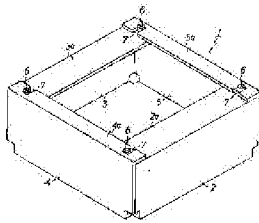
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(72)Inventor : FUKUSHIMA YUTAKA  
KAGIWADA YUKIO

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## (54) BOX-TYPE FRAME FOR ELECTRONIC APPARATUS



### (57)Abstract:

PROBLEM TO BE SOLVED: To provide a box-type frame for an electronic apparatus which can ensure high framing accuracy and high rigidity.

SOLUTION: This box-type frame 1 is formed by clinching four corners of a plate on the square to form four sidewalls 2, 3, 4 and 5, and setting positioners (pins 6 and positioning notches 7) on adjacent sidewalls 2 and 5, 4, and the sidewalls 3 and 4, 5 to fit in each other. According to this invention, since the box-type frame 1 is formed as an unitized body by forming the four sidewalls 2 to 5 by clinching

the plate, welding points are reduced, thereby the influence due to thermal distortion is relieved, and rigidity of the box-type frame is increased. Additionally, as positioners are set in the box-type frame itself, positioning operation becomes simple, and positioning accuracy is enhanced, and moreover, dispersion of working accuracy is eliminated, thereby the framing accuracy of box-type frame 1 is improved.

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## CLAIMS

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[Claim(s)]

[Claim 1] The core box frame for electronic equipment characterized by preparing the positioning section which bends the four corners of a sheet metal at a right angle, forms four peripheral walls, and fits into an adjoining peripheral wall mutually, and being constituted.

[Claim 2] The core box frame for electronic equipment according to claim 1 characterized by constituting said positioning section from a location notch formed in one side of an adjoining peripheral wall, and a projection which protruded on another side.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to core box frames, such as a scanner box with which electronic equipment, such as an electrophotography copying machine, is equipped.

[0002]

[Description of the Prior Art] For example, although the electrophotography copying machine was equipped with the scanner box in which the scanner as an image reading means is held, core box frames, such as this scanner box, attached three components 101,102,103 shown in drawing 10 by welding, and were constituted.

[0003] Namely, core box frames, such as a scanner box Components 102,103 of two right and left by which bending shaping was carried out are consisted of [ cross-section horseshoe-shaped ] by the components 101 by which bending shaping was carried out, and the metal plate with a metal plate cross-section inverse L-shaped. Positioning each part article 101-103 with a non-illustrated fixture, the components 102,103 of two right and left were applied so that right-and-left opening of components 101 might be covered, and the core box frame was attached by joining 101 to each part article 103 comrades by welding.

[0004]

[Problem(s) to be Solved by the Invention] By the way, although the precision as an item of each part article 101-103 was highly maintained in the conventional core box frame constituted by welding three components 101-103 as shown in drawing 10 , it was difficult to maintain highly the precision after attaching each part article 101-103. That is, while positioning each part article 101-103 with the fixture, since it was easy to generate a thermal strain in each part article 101-103, it was difficult [ it / there were many welding mark, and ] to maintain highly the precision as a core box frame after attaching each part article 101-103.

[0005] This invention was made in view of the above-mentioned problem, and the place made into the object is to offer the core box frame for electronic equipment

which can secure a high precision with a group, and high rigidity.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned object, invention according to claim 1 is characterized by having prepared the positioning section which bends the four corners of a sheet metal at a right angle, forms four peripheral walls, and fits into an adjoining peripheral wall mutually, and constituting the core box frame for electronic equipment.

[0007] Moreover, invention according to claim 2 is characterized by constituting said positioning section from a location notch formed in one side of an adjoining peripheral wall, and a projection which protruded on another side in invention according to claim 1.

[0008] Therefore, since a core box frame is constituted in one by bending one sheet metal and forming four peripheral walls according to this invention, while welding mark are reduced and the effect of a thermal strain is mitigated Since the rigidity of this core box frame is raised and the positioning section is prepared in the core box frame itself, while positioning is simplified, positioning accuracy is raised, the variation in process tolerance is absorbed and the precision with a group of a core box frame is raised.

[0009]

[Embodiment of the Invention] The gestalt of operation of this invention is explained based on an accompanying drawing below.

[0010] The perspective view of the core box frame for electronic equipment which drawing 1 requires for this invention, drawing 2 - drawing 5 are drawings explaining the production process of this core box frame.

[0011] While the core box frame 1 shown in drawing 1 is the scanner box of an electrophotography copying machine, and this bends the four corners of a sheet metal at a right angle and forming the peripheral walls 2, 3, 4, and 5 of front and rear, right and left Bend the edge of each peripheral walls 2-5 at a right angle toward the inside, form flanges 2a, 3a, 4a, and 5a, and between flange 2a, adjoining 4a and 5a and adjoining flange 3a, and 4a and 5a It is constituted by

the core box by preparing the positioning section which consists of a pin 6 which fits in mutually, and a location notch 7, and spot-welding the adjoining peripheral walls 2 and 4 and 5 \*\*, a peripheral wall 3, 4 and 5 and flange 2a, 4a and 5a, flanges 3a and 4a, and 5a.

[0012] Next, the production process of the core box frame 1 which has the above-mentioned configuration is explained based on drawing 2 - drawing 5 .

[0013] Although sheet-metal 1A which constitutes the shape of a cross joint which cuts a griddle etc. and is first shown in drawing 2 is manufactured on the occasion of manufacture of the core box frame 1 Flat-surface section (part which constitutes base of core box frame 1) 1a of the rectangle surrounded with the chain lines a, b, c, and d by this sheet-metal 1A, this -- a flat surface -- the section -- one -- a -- a perimeter -- forming -- having -- front and rear, right and left -- four -- a \*\* -- a rectangle -- a piece (part which constitutes said peripheral walls 2-5) -- two -- ' -- three -- ' -- four -- ' -- five -- ' -- containing -- having -- each rectangle piece 3 -- 'band-like partial (part which constitutes said flangesa [ 2 ]- 5a) 2a' divided by the edge of -5' with the chain lines e, f, g, and h, 3a', 4a', 5a' are prepared. in addition, notch 1b as a relief groove for avoiding the interference at the time of bending shaping is formed in the four corner sections (adjoining -- a rectangle -- a piece -- two -- ' -- four -- ' -- five -- ' -- and -- a rectangle -- a piece -- three -- ' -- four -- ' -- five -- ' -- a base) of flat-surface partial 1a of sheet-metal 1A, respectively.

[0014] moreover -- order -- a peripheral wall -- two -- three -- constituting -- a rectangle -- a piece -- two -- ' -- three -- ' -- band-like -- a part -- two -- a -- ' -- three -- a -- ' -- a rear face (setting in the condition which shows in drawing 2 ) -- right and left -- \*\*\*\* -- said pin 6 -- protruding -- having -- \*\*\*\* -- right and left -- a peripheral wall -- four -- five -- constituting -- a rectangle -- a piece -- four -- ' -- five -- ' -- band-like -- a part -- four -- a -- ' -- five -- a -- ' -- order -- \*\*\*\* -- a pin -- six -- fitting in -- a sake -- a rectangle -- a notch -- \*\* -- said -- a location notch -- seven -- forming -- having -- \*\*\*\* .

[0015] sheet-metal 1A which it \*\* and is shown in drawing 2 -- each rectangle

piece 2, after the flanges 2a-5a which a right angle bends inside and are shown in drawing 1 are formed, as shown in drawing 3 along with the chain lines e, f, g, and h which 'band-like partial 2a'-5a of -5" shows to drawing 2 As shown in drawing 4 , rectangle piece 2' of order and 3' are bent by the right angle in the direction of a graphic display arrow head (upper part) along with the chain lines a and b (refer to drawing 2 ), and the peripheral walls 2 and 3 of order are formed. To the upper bed of each peripheral walls 2 and 3, flanges 2a and 3a extend horizontally toward the inside, and said pin 6 projects in right and left of the top face, respectively.

[0016] If the peripheral walls 2 and 3 of order are formed as mentioned above, as shown in drawing 5 Rectangle piece 4' on either side and 5' are bent by the right angle in the direction of a graphic display arrow head (upper part) along with the chain lines c and d (refer to drawing 2 ), and the peripheral walls 4 and 5 on either side are formed. To the upper bed of each peripheral walls 4 and 5, flanges 4a and 5a extend horizontally toward the inside, and said location notch 7 carries out opening before and after each flanges 4a and 5a, respectively.

[0017] By the way, rectangle piece 4' on either side and when bending 5' and forming the peripheral walls 4 and 5 on either side, as shown in a detail at drawing 6 , fitting of the location notch 7 formed in flange 4a (5a) of rectangle piece (only left-hand side rectangle piece 4' is shown in drawing 6 ) 4' (5') on either side is carried out to the pin 6 which protruded on the flanges 2a and 3a of the peripheral walls 2 and 3 of order. And, maintaining the condition of having carried out fitting of the pin 6 which protruded on the flanges 2a and 3a of the peripheral walls 2 and 3 of order to the location notch 7 formed in the flanges 4a and 5a of the peripheral walls 4 and 5 on either side, and having pushed the pin 6 against back 7a of a location notch 7 The peripheral walls 4 and 5 on either side are pressed against the end face of the peripheral walls 2 and 3 before and after adjoining these, and they are several points (with the gestalt of this operation) about the peripheral walls 4 and 5 of flanges 4a and 5a and right and left. Four flanges and the cube type frame (scanner box) 1 shown in drawing 1 by

spot-welding by a total of 12 points of eight peripheral walls to flanges 2a and 3a and the peripheral walls 2 and 3 of order are obtained.

[0018] Here, the distance between the peripheral walls 2 and 3 before and behind the back with a group (squareness of each peripheral walls 2 and 3) is maintained by high degree of accuracy when a pin 6 fits into a location notch 7 (that is,). It is managed by high degree of accuracy with the distance between both the location notches 7, and the peripheral wall 4 on either side and the distance between five are maintained by high degree of accuracy by making the pin 6 which protruded on the flanges 2a and 3a of order contact back 7a of the location notch 7 formed in the flanges 4a and 5a on either side (that is,). It is managed by high degree of accuracy with the distance of both the gage pins 6.

[0019] As mentioned above, since the core box frame (scanner box) 1 concerning the gestalt of this operation is constituted in one by bending one sheet-metal 1A and forming four peripheral walls 2-5 of front and rear, right and left, While welding mark were reduced and the effect of a thermal strain was mitigated, it was reduced by 12 points (four flanges, eight peripheral walls) from 18 points (four flanges, eight peripheral walls, six flat-surface sections) of the former [ mark / welding ] incidentally to which the rigidity of this core box frame 1 is raised.

[0020] Moreover, since the positioning section which changes from a pin 6 and a location notch 7 to core box frame 1 the very thing is prepared, while positioning is simplified and a fixture is also simplified, positioning accuracy is raised, the variation in process tolerance is absorbed and the precision with a group of the core box frame 1 is raised.

[0021] In addition, although the configuration the positioning section is constituted from a pin 6 which protruded on the flanges 2a and 3a of the peripheral walls 2 and 3 of order, and a location notch 7 formed in the flanges 4a and 5a of the peripheral walls 4 and 5 on either side as shown in drawing 7 (a), and fitting of the location notch 7 is carried out [ configuration ] to a pin 6 was adopted with the gestalt of this operation As shown in drawing 7 (b), a pin 6 may



be protruded on the underside of the flanges 4a and 5a of the peripheral walls 4 and 5 on either side, and the configuration a location notch 7 is formed in the flanges 2a and 3a of the peripheral walls 2 and 3 of order, and fitting of the pin 6 is carried out [ configuration ] to a location notch 7 may be adopted.

[0022] moreover -- drawing 8 -- being shown -- as -- order -- a peripheral wall -- two -- three -- a flange -- two -- a -- three -- a -- burring -- one -- protruding -- having had -- a cylinder -- \*\* -- a projection -- six -- ' -- right and left -- a peripheral wall -- four -- five -- a flange -- four -- a -- five -- a -- forming -- having had -- a round hole -- seven -- ' -- or -- a rectangle -- a hole -- seven -- " -- the positioning section -- constituting -- As shown in drawing 9 (a), the configuration which carries out fitting may be adopted as round hole 7' or rectangle hole 7" for projection 6'. In this case, as shown in drawing 9 (b), by burring, it goes to the flanges 4a and 5a of the peripheral walls 4 and 5 on either side caudad, and projection 6' is protruded on them, and round hole 7' or rectangle hole 7" is formed in the flanges 2a and 3a of the peripheral walls 2 and 3 of order, and it may be made to carry out fitting of both to them.

[0023] Furthermore, although the above described the gestalt which applied this invention to the scanner box of an electrophotography copying machine, as for this invention, it is needless to say for it to be able to apply similarly to the core box frame of the electronic equipment of other arbitration.

[0024]

[Effect of the Invention] Since the positioning section which bends the four corners of a sheet metal at a right angle by the above explanation according to this invention so that clearly, forms four peripheral walls, and fits into an adjoining peripheral wall mutually was prepared and the core box frame for electronic equipment was constituted, the effectiveness that a high precision with a group and high rigidity are securable for this core box frame is acquired.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective view of the core box frame for electronic equipment concerning this invention (scanner box).

[Drawing 2] It is a top view explaining the production process of the core box frame for electronic equipment concerning this invention.

[Drawing 3] It is a top view explaining the production process of the core box frame for electronic equipment concerning this invention.

[Drawing 4] It is a top view explaining the production process of the core box frame for electronic equipment concerning this invention.

[Drawing 5] It is a perspective view explaining the production process of the core box frame for electronic equipment concerning this invention.

[Drawing 6] It is a partial perspective view explaining the production process of the core box frame for electronic equipment concerning this invention.

[Drawing 7] It is the fragmentary sectional view showing the gestalt of the positioning section.

[Drawing 8] It is the partial perspective view showing the gestalt of other operations of the core box frame for electronic equipment concerning this invention.

[Drawing 9] It is the fragmentary sectional view showing other gestalten of the

positioning section.

[Drawing 10] It is the decomposition perspective view showing the configuration of the conventional core box frame.

[Description of Notations]

1 Core Box Frame

2-5 Peripheral wall

2a-5a Flange

6 Pin (Projection)

6' Projection

7 Location Notch

7' Round hole

7" Rectangle hole

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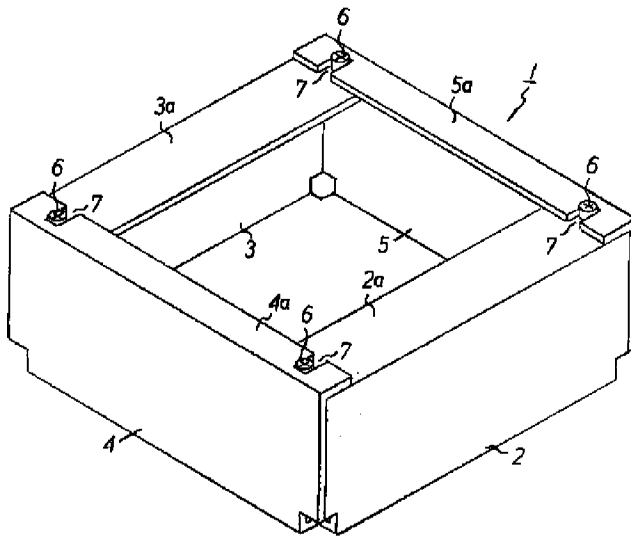
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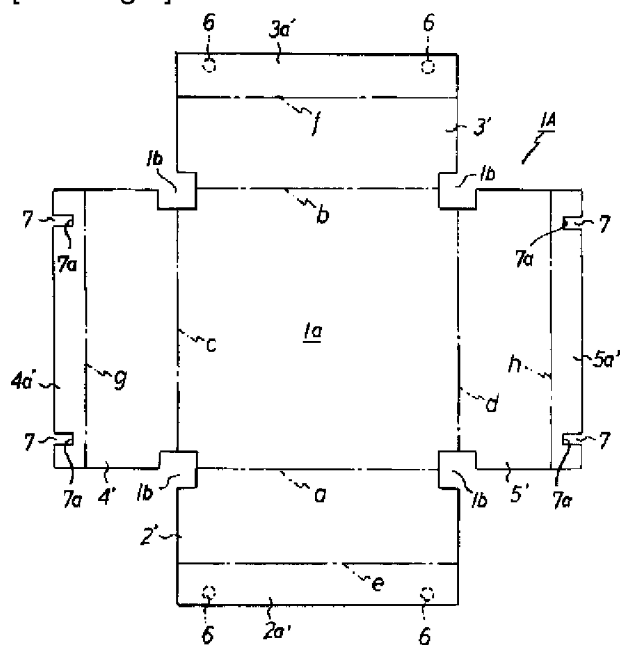
**DRAWINGS**

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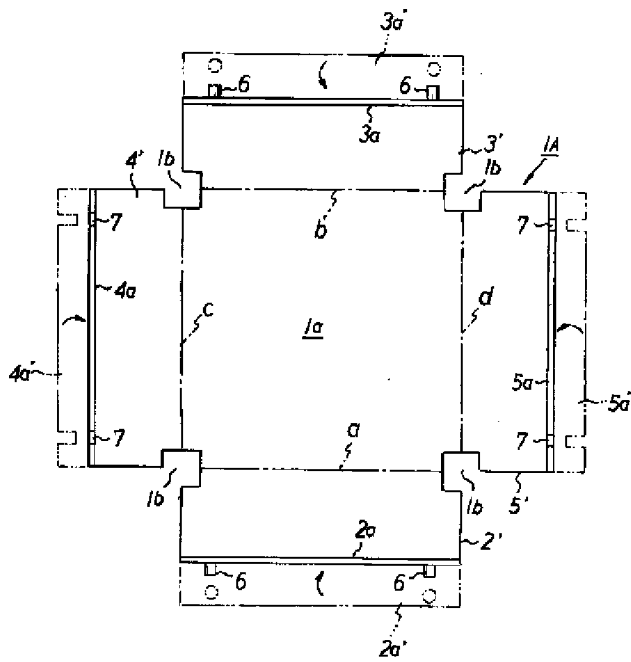
[Drawing 1]



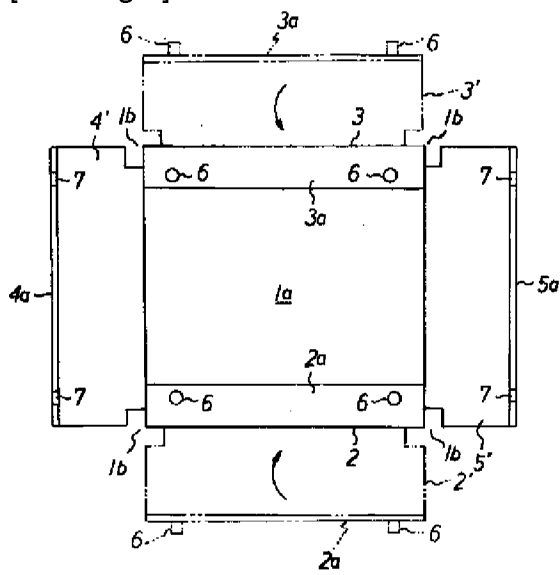
[Drawing 2]



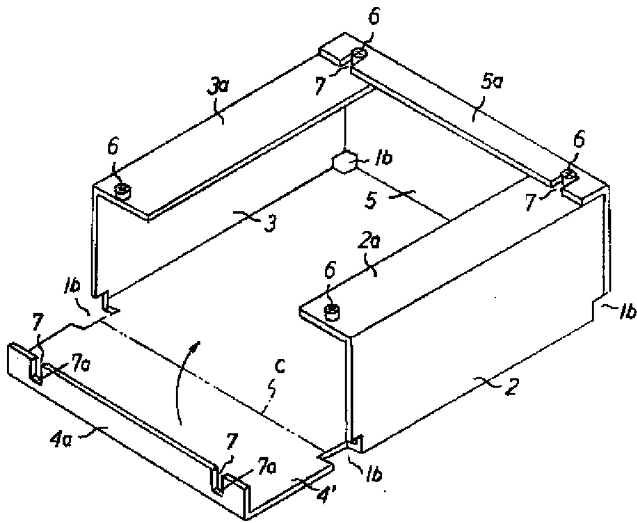
[Drawing 3]



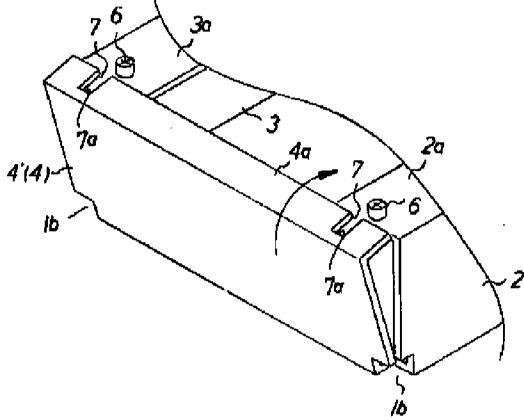
[Drawing 4]



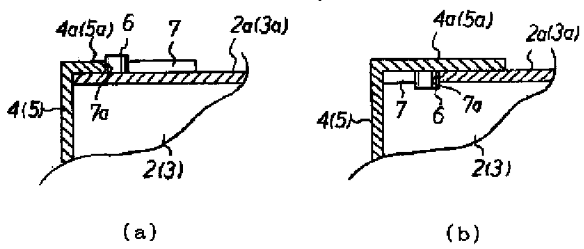
[Drawing 5]



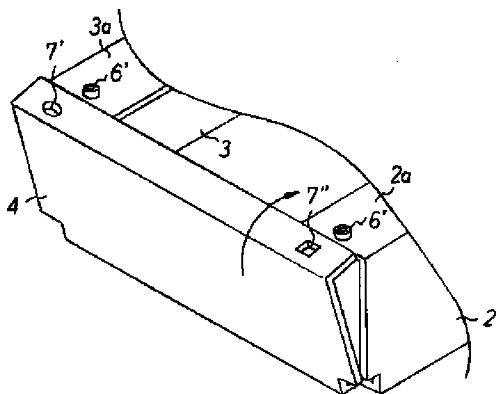
[Drawing 6]



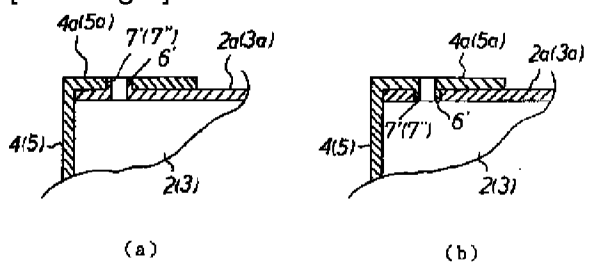
[Drawing 7]



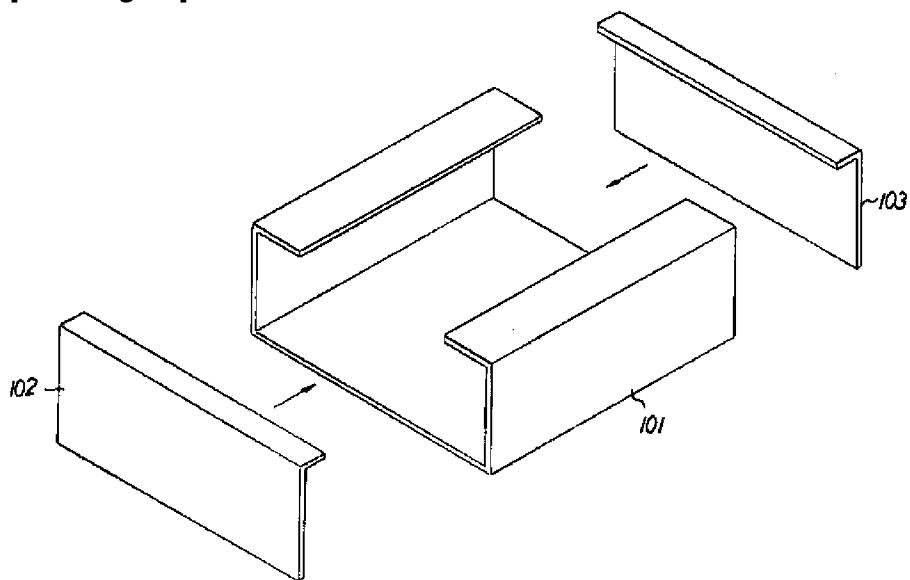
[Drawing 8]



[Drawing 9]



[Drawing 10]



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(71) 出願人 000219233

東プレ株式会社

東京都中央区日本橋3丁目12番2号

(72) 発明者 福島 裕

神奈川県相模原市南橋本3-2-25東プレ  
株式会社相模原事業所内

(72) 発明者 鍵和田 幸雄

神奈川県相模原市南橋本3-2-25東プレ  
株式会社相模原事業所内

(74) 代理人 100092853

弁理士 山下 亮一

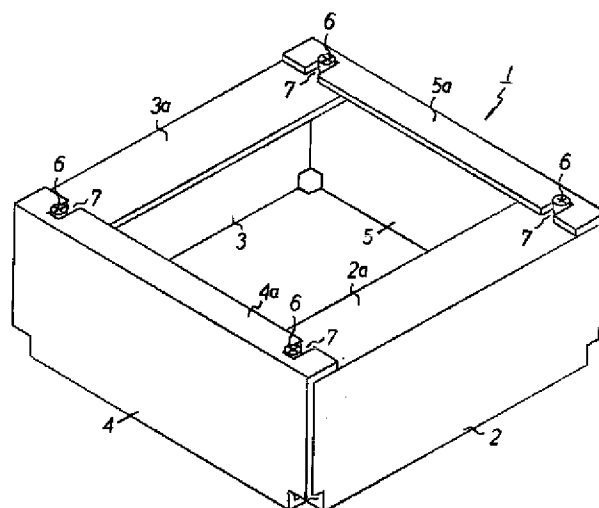
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GA06 GA11 GA53 GB48 GC02

(54) 【発明の名称】 電子機器用箱型フレーム

(57) 【要約】

【目的】 高い組付精度と高い剛性を確保することができる電子機器用箱型フレームを提供すること。

【構成】 板金の四隅を直角に折り曲げて4つの周壁2, 3, 4, 5を形成し、隣接する周壁2と3, 4及び周壁3と4, 5に、互いに嵌合する位置決め部(ピン6と位置決め溝7)を設けて電子機器用箱型フレーム1を構成する。本発明によれば、1枚の板金を折り曲げて4つの周壁2~5を形成することによって箱型フレーム1が一体的に構成されるため、溶接点数が削減されて熱歪の影響が軽減されるとともに、該箱型フレーム1の剛性が高められ、又、箱型フレーム1自体に位置決め部が設けられているため、位置決め作業が簡略化されるとともに、位置決め精度が高められ、加工精度のバラツキが吸収されて箱型フレーム1の組付精度が高められる。





## 【特許請求の範囲】

【請求項1】 板金の四隅を直角に折り曲げて4つの周壁を形成し、隣接する周壁に、互いに嵌合する位置決め部を設けて構成されることを特徴とする電子機器用箱型フレーム。

【請求項2】 前記位置決め部を、隣接する周壁の一方に形成された位置決め溝と他方に突設された突起とで構成したことを特徴とする請求項1記載の電子機器用箱型フレーム。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、電子写真複写機等の電子機器に備えられるスキャナーボックス等の箱型フレームに関する。

## 【0002】

【従来の技術】例えば電子写真複写機には画像読取手段としてのスキャナーを収容するスキャナーボックスが備えられているが、このスキャナーボックス等の箱型フレームは図10に示す3つの部品101、102、103を溶接によって組み付けて構成されていた。

【0003】即ち、スキャナーボックス等の箱型フレームは、金属板によって断面コの字状に折曲成形された部品101と金属板によって断面逆L字状に折曲成形された左右2つの部品102、103で構成され、不図示の治具によって各部品101～103を位置決めしつつ左右2つの部品102、103を部品101の左右開口部を覆うように当て、各部品101～103同士を溶接によって接合することによって箱型フレームが組み付けられていた。

## 【0004】

【発明が解決しようとする課題】ところで、図10に示すように3つの部品101～103を溶接して構成される従来の箱型フレームにおいては、各部品101～103の単品としての精度は高く維持されるものの、各部品101～103を組み付けた後の精度を高く維持することは困難であった。即ち、各部品101～103を治具によって位置決めする必要があるとともに、溶接点数が多くて各部品101～103に熱歪が発生し易いため、各部品101～103を組み付けた後の箱型フレームとしての精度を高く維持することが困難であった。

【0005】本発明は上記問題に鑑みてなされたもので、その目的とするところは、高い組付精度と高い剛性を確保することができる電子機器用箱型フレームを提供することにある。

## 【0006】

【課題を解決するための手段】上記目的を達成するため、請求項1記載の発明は、板金の四隅を直角に折り曲げて4つの周壁を形成し、隣接する周壁に、互いに嵌合する位置決め部を設けて電子機器用箱型フレームを構成したことを特徴とする。

【0007】又、請求項2記載の発明は、請求項1記載の発明において、前記位置決め部を、隣接する周壁の一方に形成された位置決め溝と他方に突設された突起とで構成したことを特徴とする。

【0008】従って、本発明によれば、1枚の板金を折り曲げて4つの周壁を形成することによって箱型フレームが一体的に構成されるため、溶接点数が削減されて熱歪の影響が軽減されるとともに、該箱型フレームの剛性が高められ、又、箱型フレーム自体に位置決め部が設けられているため、位置決め作業が簡略化されるとともに、位置決め精度が高められ、加工精度のバラツキが吸収されて箱型フレームの組付精度が高められる。

## 【0009】

【発明の実施の形態】以下に本発明の実施の形態を添付図面に基づいて説明する。

【0010】図1は本発明に係る電子機器用箱型フレームの斜視図、図2～図5は同箱型フレームの製造工程を説明する図である。

【0011】図1に示す箱型フレーム1は電子写真複写機のスキャナーボックスであり、これは板金の四隅を直角に折り曲げて前後左右の周壁2、3、4、5を形成するとともに、各周壁2～5の端縁を内側に向かって直角に折り曲げてフランジ部2a、3a、4a、5aを形成し、隣接するフランジ部2aと4a、5a及びフランジ部3aと4a、5aの間に、互いに嵌合するピン6と位置決め溝7とで構成される位置決め部を設け、隣接する周壁2と4及び5及、周壁3と4及び5、フランジ部2aと4a及び5a、フランジ部3aと4a及び5a同士を点溶接することによって箱型に構成されている。

【0012】次に、上記構成を有する箱型フレーム1の製造工程を図2～図5に基づいて説明する。

【0013】箱型フレーム1の製造に際しては、先ず、鉄板等を切断して図2に示す十字状を成す板金1Aを製作するが、この板金1Aには、鎖線a、b、c、dによって囲まれた矩形の平面部（箱型フレーム1の底面を構成する部分）1aと、この平面部1aの周囲に形成される前後左右の4つの矩形片（前記周壁2～5を構成する部分）2'、3'、4'、5'が含まれ、各矩形片3'～5'の端縁には鎖線e、f、g、hにて区画された帯状部分（前記フランジ部2a～5aを構成する部分）2a'、3a'、4a'、5a'が設けられている。尚、板金1Aの平面部分1aの4つのコーナー部（隣接する矩形片2'と4'、5'及び矩形片3'と4'、5'の基部）には折曲成形時の干渉を避けるための逃げ溝としての切欠き1bがそれぞれ形成されている。

【0014】又、前後の周壁2、3を構成する矩形片2'、3'の帯状部分2a'、3a'の裏面（図2に示す状態において）の左右には前記ピン6が突設されており、左右の周壁4、5を構成する矩形片4'、5'の帯状部分4a'、5a'の前後にはピン6が嵌合するため

の矩形切欠き状の前記位置決め溝7が形成されている。

【0015】而して、図2に示す板金1Aは各矩形片2'～5'の帯状部分2a'～5a'が図2に示す鎖線e, f, g, hに沿って図3に示すように内側に直角に折り曲げられて図1に示すフランジ部2a～5aが形成された後、図4に示すように前後の矩形片2', 3'が鎖線a, b(図2参照)に沿って図示矢印方向(上方)に直角に折り曲げられて前後の周壁2, 3が形成され、各周壁2, 3の上端にはフランジ部2a, 3aが内側に向かって水平に延出し、その上面の左右には前記ピン6がそれぞれ突出する。

【0016】上述のように前後の周壁2, 3が形成されると、図5に示すように、左右の矩形片4', 5'が鎖線c, d(図2参照)に沿って図示矢印方向(上方)に直角に折り曲げられて左右の周壁4, 5が形成され、各周壁4, 5の上端にはフランジ部4a, 5aが内側に向かって水平に延出し、各フランジ部4a, 5aの前後には前記位置決め溝7がそれぞれ開口する。

【0017】ところで、左右の矩形片4', 5'を折り曲げて左右の周壁4, 5を形成する場合、図6に詳細に示すように、左右の矩形片(図6には左側の矩形片4'のみを示す)4'(5')のフランジ部4a(5a)に形成された位置決め溝7を前後の周壁2, 3のフランジ部2a, 3aに突設されたピン6に嵌合させる。そして、左右の周壁4, 5のフランジ部4a, 5aに形成された位置決め溝7に前後の周壁2, 3のフランジ部2a, 3aに突設されたピン6を嵌合させ、位置決め溝7の奥7aにピン6を押し付けた状態を維持しつつ、左右の周壁4, 5をこれらに隣接する前後の周壁2, 3の端面に押し当て、フランジ部4a, 5aと左右の周壁4, 5を数点(本実施の形態では、フランジ部4点、周壁8点の計12点)でフランジ部2a, 3aと前後の周壁2, 3に点溶接することによって図1に示す箱型フレーム(スキャナーボックス)1が得られる。

【0018】ここで、組付後の前後の周壁2, 3の間の距離(各周壁2, 3の直角度)はピン6が位置決め溝7に嵌合することによって高精度に維持され(つまり、両位置決め溝7間の距離によって高精度に管理され)、左右の周壁4, 5間の距離は前後のフランジ部2a, 3aに突設されたピン6を左右のフランジ4a, 5aに形成された位置決め溝7の奥7aに当接させることによって高精度に維持される(つまり、両位置決めピン6の距離によって高精度に管理される)。

【0019】以上のように、本実施の形態に係る箱型フレーム(スキャナーボックス)1は1枚の板金1Aを折り曲げて前後左右の4つの周壁2～5を形成することによって一体的に構成されるため、溶接点数が削減されて熱歪の影響が軽減されるとともに、該箱型フレーム1の剛性が高められる、因に、溶接点数は従来の18点(フランジ部4点、周壁8点、平面部6点)から12点(フ

ランジ部4点、周壁8点)に削減された。

【0020】又、箱型フレーム1自体にピン6と位置決め溝7から成る位置決め部が設けられているため、位置決め作業が簡略化されて治具も簡略化されるとともに、位置決め精度が高められ、加工精度のバラツキが吸収されて箱型フレーム1の組付精度が高められる。

【0021】尚、本実施の形態では、図7(a)に示すように前後の周壁2, 3のフランジ部2a, 3aに突設されたピン6と左右の周壁4, 5のフランジ部4a, 5aに形成された位置決め溝7とで位置決め部を構成し、位置決め溝7をピン6に嵌合させる構成を採用したが、図7(b)に示すように、左右の周壁4, 5のフランジ4a, 5aの下面にピン6を突設し、前後の周壁2, 3のフランジ部2a, 3aに位置決め溝7を形成してピン6を位置決め溝7に嵌合させる構成を採用しても良い。

【0022】又、図8に示すように、前後の周壁2, 3のフランジ部2a, 3aにバーリング加工によって一体に突設された円筒状の突起6'と左右の周壁4, 5のフランジ部4a, 5aに形成された丸孔7'又は矩形孔7''とで位置決め部を構成し、図9(a)に示すように丸孔7'又は矩形孔7''に突起6'を嵌合させる構成を採用しても良い。この場合、図9(b)に示すように、左右の周壁4, 5のフランジ部4a, 5aにバーリング加工によって突起6'を下方に向かって突設し、前後の周壁2, 3のフランジ部2a, 3aに丸孔7'又は矩形孔7''を形成して両者を嵌合させるようにしても良い。

【0023】更に、以上は本発明を電子写真複写機のスキャナーボックスに適用した形態について述べたが、本発明は他の任意の電子機器の箱型フレームに対しても同様に適用可能であることは勿論である。

【0024】

【発明の効果】以上の説明で明らかなように、本発明によれば、板金の四隅を直角に折り曲げて4つの周壁を形成し、隣接する周壁に、互いに嵌合する位置決め部を設けて電子機器用箱型フレームを構成したため、該箱型フレームに高い組付精度と高い剛性を確保することができるという効果が得られる。

【図面の簡単な説明】

【図1】本発明に係る電子機器用箱型フレーム(スキャナーボックス)の斜視図である。

【図2】本発明に係る電子機器用箱型フレームの製造工程を説明する平面図である。

【図3】本発明に係る電子機器用箱型フレームの製造工程を説明する平面図である。

【図4】本発明に係る電子機器用箱型フレームの製造工程を説明する平面図である。

【図5】本発明に係る電子機器用箱型フレームの製造工程を説明する斜視図である。

【図6】本発明に係る電子機器用箱型フレームの製造工程を説明する部分斜視図である。

【図7】位置決め部の形態を示す部分断面図である。

【図8】本発明に係る電子機器用箱型フレームの他の実施の形態を示す部分斜視図である。

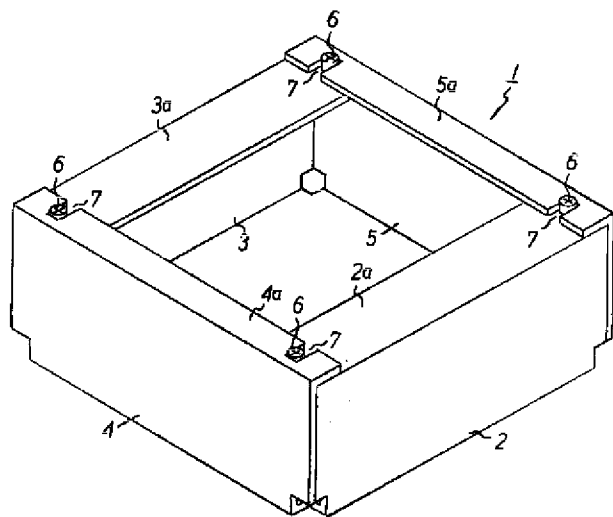
【図9】位置決め部の他の形態を示す部分断面図である。

【図10】従来の箱型フレームの構成を示す分解斜視図である。

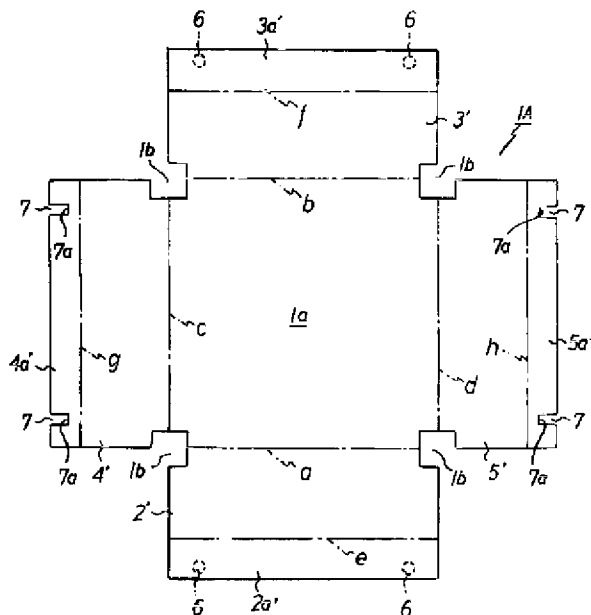
【符号の説明】

- |       |        |
|-------|--------|
| 1     | 箱型フレーム |
| 2～5   | 周壁     |
| 2a～5a | フランジ部  |
| 6     | ピン（突起） |
| 6'    | 突起     |
| 7     | 位置決め溝  |
| 7'    | 丸孔     |
| 7''   | 矩形孔    |

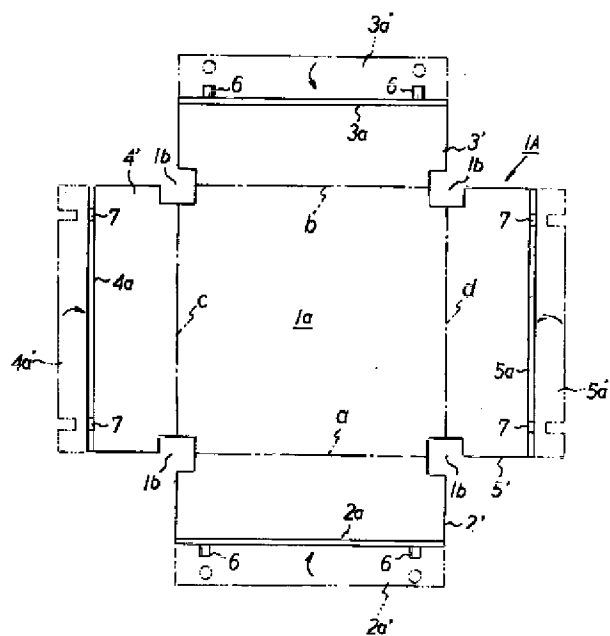
【図1】



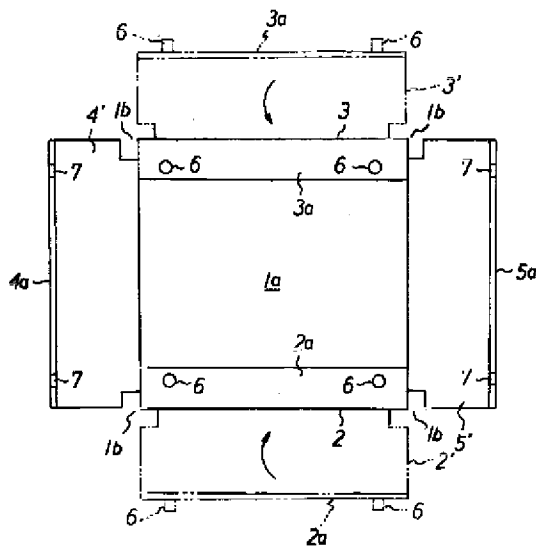
【例2】



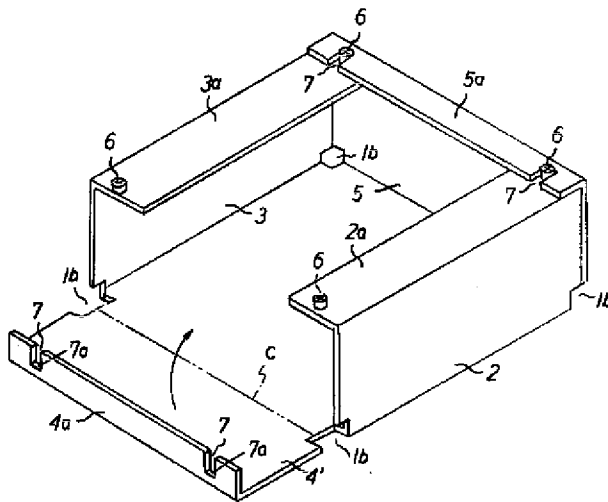
【图3】



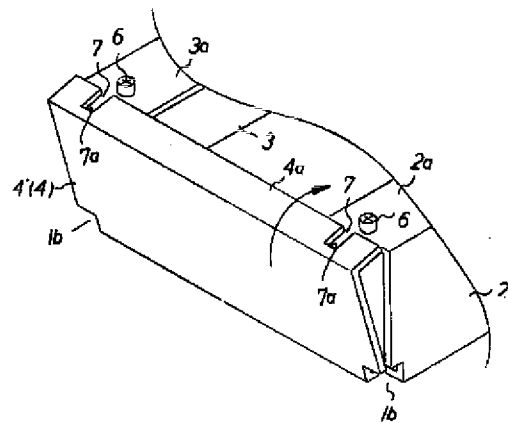
【図4】



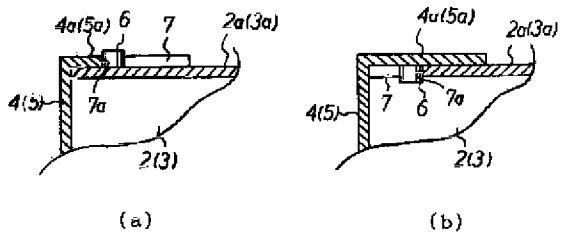
【図5】



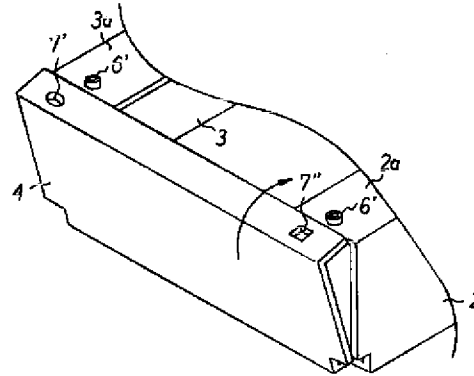
【図6】



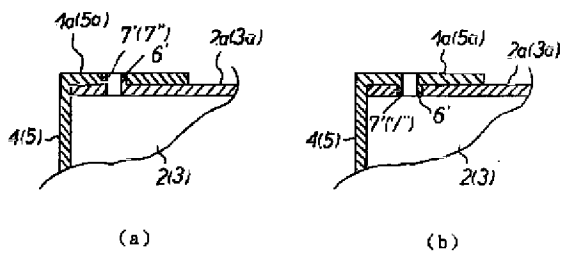
【図7】



【図8】



【図9】



【図10】

